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Claims*

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MESSAGE:

Per your request relating to USSN 10/804677, Attorney docket number CL2346 USNA,
and renumber of claims for response to restriction requirement

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Application No.: 10/804677
Docket No.: CL2346USNA

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Amendments / Listing of Claims

Claims 1 (Original). An isolated nucleic acid molecule encoding a carotenoid biosynthetic enzyme, selected from the group consisting of:

- (a) an isolated nucleic acid molecule encoding the amino acid sequence selected from the group consisting of SEQ ID NOs: 2, 4, 6, 8, 10, and 12;
- (b) an isolated nucleic acid molecule that hybridizes with (a) under the following hybridization conditions: 0.1X SSC, 0.1% SDS, 65°C and washed with 2X SSC, 0.1% SDS followed by 0.1X SSC, 0.1% SDS; or
- (c) an isolated nucleic acid molecule that is complementary to (a) or (b).

Claim 2 (Original). The isolated nucleic acid molecule of Claim 1 selected from the group consisting of SEQ ID NOs: 1, 3, 5, 7, 9, and 11.

Claim 3 (Original). An isolated nucleic acid fragment of Claim 1 isolated from *Pectobacterium*.

Claim 4 (Original). A polypeptide encoded by the isolated nucleic acid molecule of Claim 1.

Claim 5 (Original). The polypeptide of Claim 4 selected from the group consisting of SEQ ID NOs: 2, 4, 6, 8, 10, and 12.

Claim 6 (Original). An isolated nucleic acid molecule as set forth in SEQ ID NO:18, comprising the *crtE*, *crtX*, *crtY*, *crtI*, *crtB* and *crtZ*, genes or an isolated nucleic acid molecule having at least 95% identity to SEQ ID NO:18, wherein the isolated nucleic acid molecule encodes all of the polypeptides *crtE*, *crtX*, *crtY*, *crtI*, *crtB* and *crtZ*.

Claim 7 (Original). An isolated nucleic acid molecule comprising a first nucleotide sequence encoding a geranylgeranyl pyrophosphate synthase enzyme of at least 301 amino acids that has at least 70% identity based on the Smith-Waterman method of alignment when compared to a polypeptide having the sequence as set forth in SEQ ID NO: 2;

or a second nucleotide sequence comprising the complement of the first nucleotide sequence.

Claim 8 (Original). An isolated nucleic acid molecule comprising a first nucleotide sequence encoding a zeaxanthin glucosyl transferase enzyme of at least 425 amino acids that has at least 70% identity based on the Smith-Waterman method of alignment when compared to a polypeptide having the sequence as set forth in SEQ ID NO: 4;

or a second nucleotide sequence comprising the complement of the first nucleotide sequence.

Claim 9 (Original). An isolated nucleic acid molecule comprising a first nucleotide sequence encoding a lycopene cyclase enzyme of at least 388 amino acids that has at least 70% identity based on the Smith-Waterman method of alignment when compared to a